HVAC & BYGNINGSAUTOMATIK

FUGTIGHED

KANALFØLERE

NEWTRONIC

HYGRASGARD® KFF-xx
HYGRASGARD® KFTF-xx

Duct humidity and temperature sensors (± 1.8 % / ± 2.0 %), including mounting flange, calibratable, with multi-range switching and active / passive output

S+S REGELTECHNIK

Calibratable duct humidity-/temperature sensor **HYGR**ASGARD® **KFF-SD/KFTF-SD** (± 2,0 %), with plastic sinter filter (optional metal sinter filter), housing made from impact-resistant plastic with snap-on lid, with cable gland (optional M12 connector according to DIN EN 61076-2-101).

Calibratable duct humidity-/temperature sensor **HYGR**ASGARD® **KFF/KFTF** (± 2,0 %) or **KFF-20/KFTF-20** (± 1,8 %), with plastic sinter filter (optional metal sinter filter), housing made of impact-resistant plastic with quick-locking screws, optionally with / without display, with cable gland (optional M12 connector according to DIN EN 61076-2-101).

It measures the relative humidity and/or the temperature of the air and converts the measurands into a standard signal of 0 - 10 V or 4...20 mA. It has four switchable temperature ranges and is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology. These measuring transducers are designed for exact detection of humidity. A digital long-term stable sensor is used as measuring element for humidity measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

TECHNICAL DATA

Power supply:	24 V AC (± 20 %); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	Ra (ohm) = (Ub - 14 V) / 0.02 A for I variant, see load resistance diagram
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1,1 VA / 24 V DC; < 2,2 VA / 24 V AC
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
HUMIDITY	
Measuring range, humidity:	0...100 % r. H.
Permissible air humidity:	< 95 % r. H., non-precipitating air
Deviation, humidity:	**KFF / KFTF / KFF-SD / KFTF-SD:** typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 % **KFF-20 / KFTF-20:** typically **± 1.8** % (10...90 % r. H.) at +25 °C, otherwise ± 2.0 %
Output, humidity:	0 -10 V for U variant; 4...20 mA for I variant
TEMPERATURE	
Measuring range, temperature:	**multi-range switching with** **4 switchable measuring ranges** (see table) –35...+35 °C; –35...+75 °C; 0...+50 °C; 0...+80 °C
Ambient temperature:	storage –35...+85 °C; operation –30...+75 °C, non-precipitating
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0 -10 V for U variant; 4...20 mA for I variant; **KFTF-U xx** (passive temperature sensor) see table
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm², via terminal screws
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or **M12 connector** according to DIN EN 61076-2-101 (optional)
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	**KFF-xx / KFTF-xx** (without display): 72 x 64 x 37.8 mm (Tyr 1/01) **KFF / KFTF** (with display): 72 x 64 x 43.3 mm (Tyr 1) **KFF-20 / KFTF-20** (with display): 26 x 90 x 50 mm (Tyr 2)
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection Ø 20 mm, NL = 235 mm, v_{max} = 30 m/s (air) (on request, optional **stainless steel V2A** (1.4301), Ø 16 mm)
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Process connection:	by mounting flange, plastic (included in the scope of delivery)
Long-term stability:	± 1 % per year
Protection class:	III (according to EN 60 730)
Protection type:	**KFF-SD / KFTF-SD** **IP 54** (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) **KFF-xx / KFTF-xx** **IP 65** (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1)
Standards:	CE conformity, according to EMC directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	**display with illumination,** for displaying ACTUAL temperature and / or ACTUAL humidity **KFF / KFTF** (Tyr 1): two-line, cutout approx. 36 x 15 mm (W x H) **KFF-20 / KFTF-20** (Tyr 2): three-line, cutout approx. 70 x 40 mm (W x H)
ACCESSORIES	see last chapter

SF-K
Plastic sinter filter (standard)

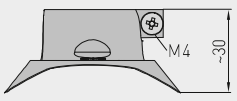
SF-M
Metal sinter filter (optional)

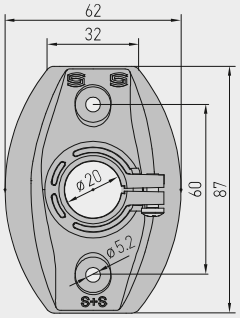
Protective tube stainless steel
(optional on request)

M12 connector
(optional)

MFT-20-K
Mounting flange, plastic

Dimensional drawing **MFT-20-K**





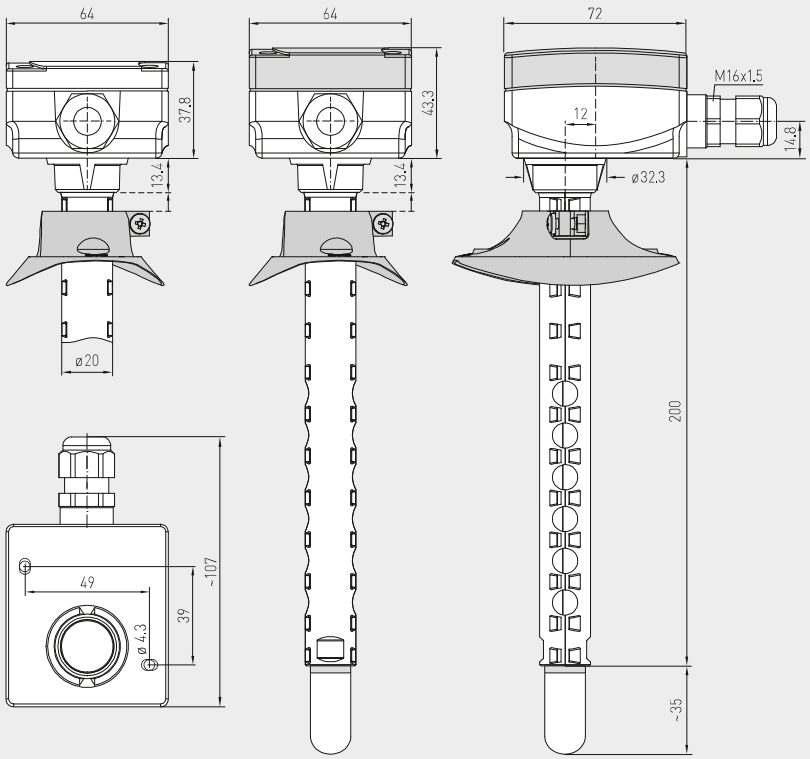
HYGRASGARD® KFF-xx
HYGRASGARD® KFTF-xx

Duct humidity and temperature sensors (± 1.8 % / ± 2.0 %), including mounting flange, calibratable, with multi-range switching and active/passive output

Dimensional drawing

KFF/KFTF with/without display
KFF-SD/KFTF-SD without display
KFF-20/KFTF-20 without display

without display **with display**

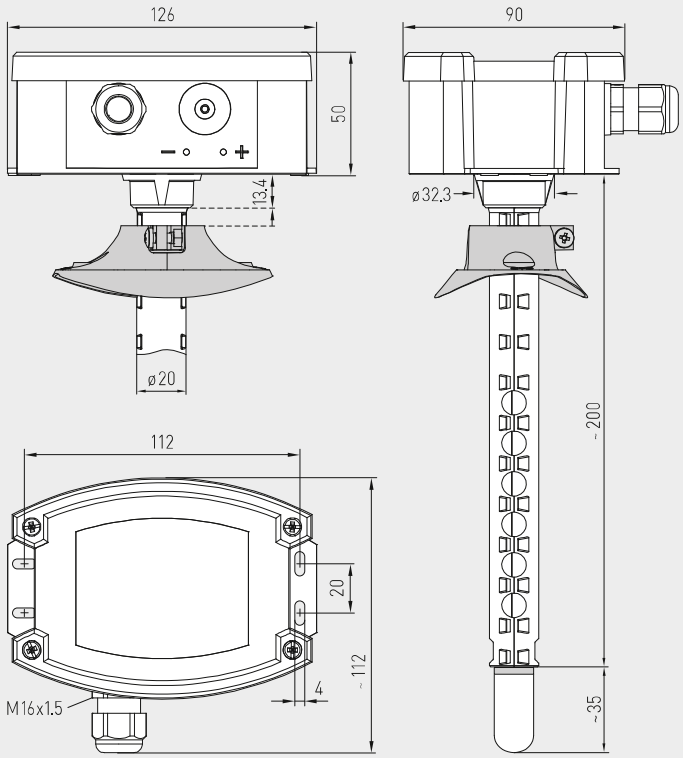


KFF-SD/KFTF-SD (± 2,0 %)
with snap-on lid
(IP 54)

KFF/KFTF (± 2,0 %)
KFF-20/KFTF-20 (± 1,8 %)
without display
(IP 65)

Dimensional drawing

KFF-20/KFTF-20 with display



KFF/KFTF (± 2,0 %)
with display
(IP 65)

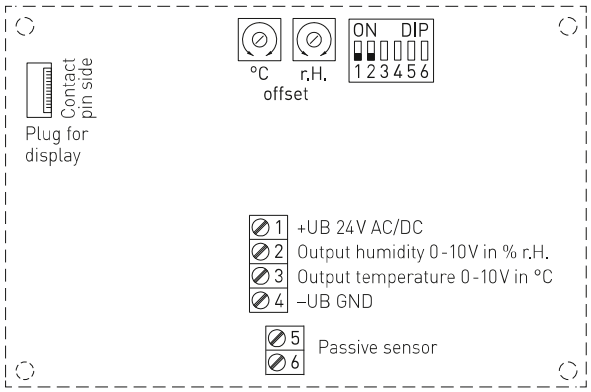
KFF-20/KFTF-20 (± 1,8 %)
with display
(IP 65)

HYGRASGARD® KFF-xx
HYGRASGARD® KFTF-xx

Duct humidity and temperature sensors (± 1.8 % / ± 2.0 %), including mounting flange, calibratable, with multi-range switching and active/passive output

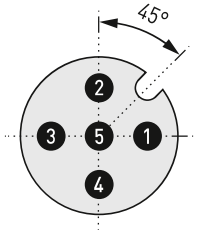
S+S REGELTECHNIK

Schematic diagram **KFTF-20-U** with display (Tyr2)



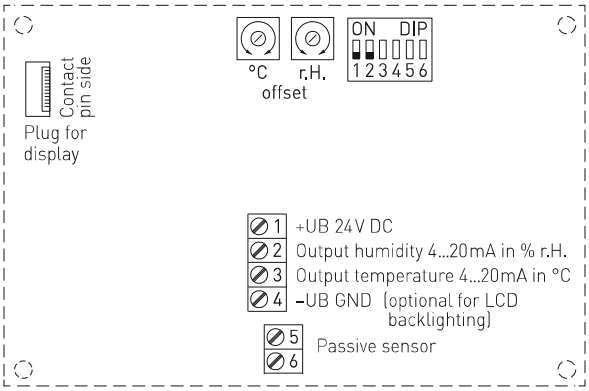
DIP 3, 4, 5, 6 are not assigned!

Pin assignment (M12) **KFTF-xx-U**



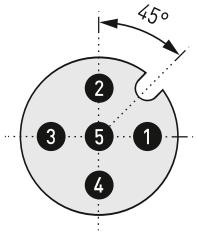
1 +UB 24V AC/DC
2 Output humidity 0-10V [% r.H.]
3 Output temperature 0-10V [°C]
4 –UB GND
5 Shield

Schematic diagram **KFTF-20-I** with display (Tyr2)



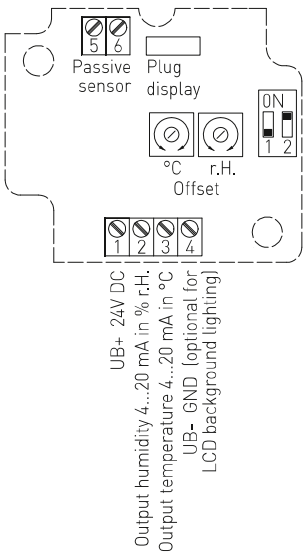
DIP 3, 4, 5, 6 are not assigned!

Pin assignment (M12) **KFTF-xx-I**

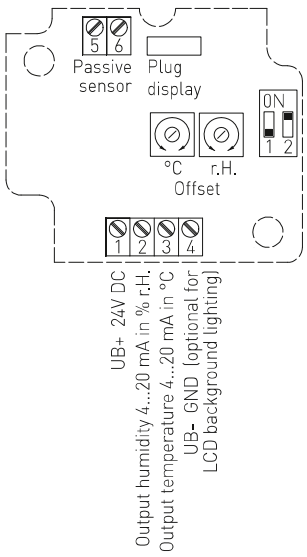


1 +UB 24V DC
2 Output humidity 4...20mA [% r.H.]
3 Output temperature 4...20mA [°C]
4 –UB GND (optional for LCD backlighting)
5 Shield

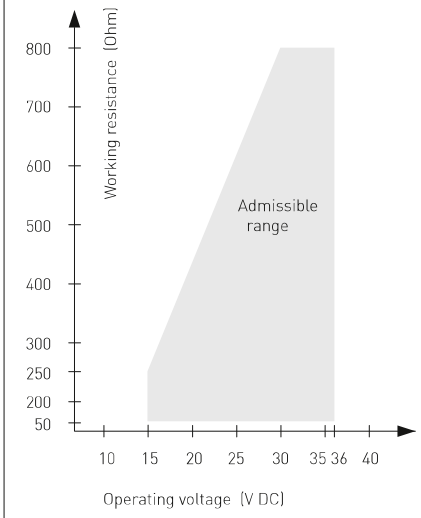
Schematic diagram **KFTF-xx-U** with / without display (Tyr1)



Schematic diagram **KFTF-xx-I** with / without display (Tyr1)



Load resistance diagram 4..20 mA **KFF-xx-I** **KFTF-xx-I**



HYGRASGARD® KFF-xx
HYGRASGARD® KFTF-xx

Duct humidity and temperature sensors (± 1.8 % / ± 2.0 %), including mounting flange, calibratable, with multi-range switching and active/passive output

3-wire connection — **KFF-xx-U**

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Free
4	–UB-GND

2- or 3-wire connection * — **KFF-xx-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4...20mA
3	Free
4	–UB-GND (optional for backlighting)

4- or 6-wire connection — **KFTF-U (passive temperature sensor)**

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	–UB-GND
5	Passive element
6	e.g. Pt1000, Ni1000, LMZ235Z

4-wire connection — **KFTF-xx-U**

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	–UB-GND

3- or 4-wire connection ** — **KFTF-xx-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4...20mA
3	Output temperature in °C 4...20mA
4	–UB-GND (optional for backlighting)

4- or 6-wire connection — **KFTF-I (passive temperature sensor)**

1	+UB 24V DC
2	Output humidity in % r.H. 4...20mA
3	Output temperature in °C 4...20mA
4	–UB-GND (optional for backlighting)
5	Passive element
6	e.g. Pt1000, Ni1000, LMZ235Z

Temperature measuring ranges (adjustable)	DIP 1	DIP 2
–35...+75 °C	**ON**	**ON**
–35...+35 °C	OFF	OFF
0...+50 °C (default)	OFF	**ON**
0...+80 °C	**ON**	OFF

Connection*:
2-wire connection for devices with/without display (not illuminated)
3-wire connection for devices with illuminated display

Connection**:
3-wire connection for devices with/without display (not illuminated)
4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® KFF-SD
HYGRASGARD® KFTF-SD

Duct humidity and temperature sensors (± 2.0 %), including mounting flange, calibratable, with multi-range switching and active output

S+S REGELTECHNIK

KFF-SD / KFTF-SD
with snap-on lid
(IP 54)

HYGRASGARD® KFF-SD	Duct humidity sensors (± 2.0 %), *Standard*
HYGRASGARD® KFTF-SD	Duct humidity and temperature sensors (± 2.0 %), *Standard*

Type / WG01B	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Item No.**	**Price**
KFF-SD					**IP 54**	
KFF-SD-I	0...100 % r. H.	–	4...20 mA	–	1201-3182-0000-029	**154,58 €**
KFF-SD-U	0...100 % r. H.	–	0-10 V	–	1201-3181-0000-029	**154,58 €**
KFTF-SD					**IP 54**	
KFTF-SD-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-3182-1000-029	**158,82 €**
KFTF-SD-U	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	1201-3181-1000-029	**158,82 €**
Housing variant:	Cable connection **with cable gland** (M12 connector on request)					

ACCESSORIES

SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
	For further information, see chapter Accessories!		

KFF / KFTF
with quick-locking screws
(IP 65)

HYGRASGARD® KFF **HYGRASGARD® KFTF**	Duct humidity sensors (± 2.0 %), *Standard* Duct humidity and temperature sensors (± 2.0 %), *Standard*						
Type / WG01	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Display**	**Item No.**	**Price**
KFF						**IP 65**	
KFF-I	0...100 % r. H.	–	4...20 mA	–		1201-3112-0000-029	**166,10 €**
KFF-I **LCD**	0...100 % r. H.	–	4...20 mA	–	■	1201-3112-0200-029	**214,60 €**
KFF-U	0...100 % r. H.	–	0-10 V	–		1201-3111-0000-029	**166,10 €**
KFF-U **LCD**	0...100 % r. H.	–	0-10 V	–	■	1201-3111-0200-029	**214,60 €**
KFTF						**IP 65**	
KFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-3112-1000-029	**170,34 €**
KFTF-I **LCD**	0...100 % r. H.	(4x as above)	4...20 mA	4...20 mA	■	1201-3112-1200-029	**218,85 €**
KFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-3111-1000-029	**170,34 €**
KFTF-U **LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	1201-3111-1200-029	**218,85 €**
Housing variant:	Cable connection **with cable gland** (M12 connector on request)						

HYGRASGARD® **KFTF-U xx**	Duct humidity and temperature sensors (± 2.0 %), *Standard* (passive temperature sensor)					
Type / WG01	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Item No.**	**Price**
KFTF-U xx	**Pt, Ni, LM235Z, NTC**			(active / **passive**)	**IP 65**	
KFTF-U Pt100	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V + **Pt100**	1201-3111-2001-029	**177,01 €**
KFTF-U Pt1000	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **Pt1000**	1201-3111-2005-029	**177,62 €**
KFTF-U Ni1000	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **Ni1000**	1201-3111-2009-029	**178,23 €**
KFTF-U NiTK	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **Ni1000TK5000**	1201-3111-2010-029	**179,19 €**
KFTF-U LM235Z	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **LM235Z**, 10mV / K	1201-3111-2021-029	**177,98 €**
KFTF-U NTC1,8K	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **NTC 1,8 kOhm**	1201-3111-2012-029	**178,23 €**
KFTF-U NTC10K	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **NTC 10 kOhm**	1201-3111-2015-029	**177,13 €**
KFTF-U NTC20K	0...100 % r. H.	(4x as above)	0-10 V	0-10 V + **NTC 20 kOhm**	1201-3111-2016-029	**177,13 €**
Housing variant:	Cable connection **with cable gland** (M12 connector on request)					

HYGRASGARD® KFTF-20-Q

Duct humidity and temperature sensors (± 1.8 %), incl. mounting flange, calibratable, with multi-range switching and active output

S+S REGELTECHNIK

KFTF-20-Q
with M12 connector,
with display (Tyr2)

KFTF-20-Q
with M12 connector,
without display (Tyr1)

HYGRASGARD® **KFTF-20-Q**	Duct humidity and temperature sensors (± 1,8 %), *Premium* **(with M12 connector)**						
Type / WG02	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Display** ● = **Q**	**Item No.**	**Price**
KFTF-20-Q						**IP65**	
KFTF-20-I **Q**	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA	●	2003-4151-2100-001	**292,15 €**
KFTF-20-I **Q LCD**	0...100 % r. H.	(4x as above)	4... 20 mA	4... 20 mA	● ■	2003-4172-2100-001	**338,22 €**
KFTF-20-U **Q**	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	●	2003-4151-1100-001	**292,15 €**
KFTF-20-U **Q LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	● ■	2003-4172-1100-001	**338,22 €**
Housing variant "Q":	Cable connection **with M12 connector** (male, **5-pin**, A-code)						

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
	For further information, see chapter Accessories!		

HYGRASGARD® KFF-20
HYGRASGARD® KFTF-20

Duct humidity and temperature sensors (± 1.8 %), incl. mounting flange, calibratable, with multi-range switching and active output

KFF-20 / KFTF-20
with cable gland,
with display (Tyr2)

KFF-20 / KFTF-20
with cable gland,
without display (Tyr1)

HYGRASGARD® KFF-20
Duct humidity sensors (± 1,8 %), *Premium* (with cable gland)

Type / WG02	Measuring Range / Readout Humidity	Temperature	Output Humidity	Temperature	Display	Item No.	Price
KFF-20						IP65	
KFF-20-I	0...100 % r. H.	–	4... 20 mA	–		1201-3112-0000-030	**229,75 €**
KFF-20-I **LCD**	0...100 % r. H.	–	4... 20 mA	–	■	1201-8112-0400-030	**278,25 €**
KFF-20-U	0...100 % r. H.	–	0-10 V	–		1201-3111-0000-030	**229,75 €**
KFF-20-U **LCD**	0...100 % r. H.	–	0-10 V	–	■	1201-8111-0400-030	**278,25 €**
Housing variant:	Cable connection **with cable gland** (M12 connector on request)						

HYGRASGARD® KFTF-20
Duct humidity and temperature sensors (± 1,8 %), *Premium* (with cable gland)

Type / WG02	Measuring Range / Readout Humidity	Temperature	Output Humidity	Temperature	Display	Item No.	Price
KFTF-20						IP65	
KFTF-20-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-3112-1000-030	**252,22 €**
KFTF-20-I **LCD**	0...100 % r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	1201-8112-1400-030	**298,30 €**
KFTF-20-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-3111-1000-030	**252,22 €**
KFTF-20-U **LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	1201-8111-1400-030	**298,30 €**
Housing variant:	Cable connection **with cable gland** (M12 connector see **KFTF-20-Q**)						

ACCESSORIES

SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
	For further information, see chapter Accessories!		

HYGRASGARD® KFTF-20-VA

Duct humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

Calibratable humidity and temperature sensor **HYGR**ASGARD® **KFTF-20-VA** (± 1.8 %) with metal sinter filter, rugged housing, **stainless steel V4A**, optionally with / without display, with cable gland or M12 connector according to DIN EN 61076-2-101.

It measures the relative humidity and the temperature of the air and converts the measurand into a standard signal of 0 - 10 V or 4...20 mA. It has four switchable temperature ranges and is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology. These measuring transducers are designed for exact detection of humidity. A digital long-term stable sensor is used as measuring element for humidity measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

KFTF-20-VA
with cable gland

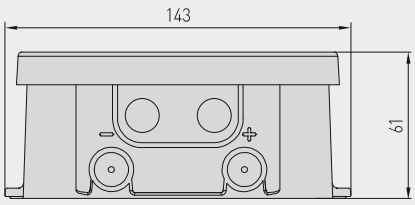
KFTF-20-VAQ
with M12 connector

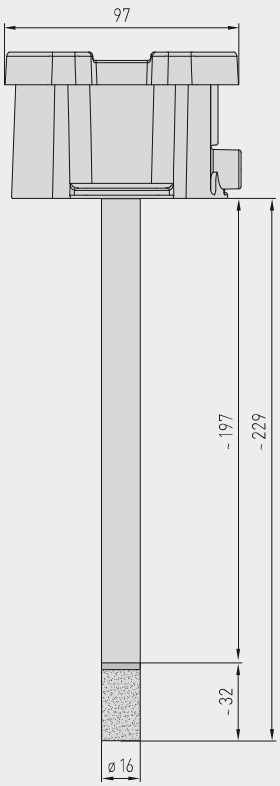
TECHNICAL DATA

Power supply:	24 V AC (± 20 %); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (ohm) = (U_b -14 V) / 0.02 A for **I** variant, see load resistance diagram
Load resistance:	R_L > 5 kOhm for U variant
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
HUMIDITY	
Measuring range, humidity:	0...100 % r. H.
Permitted humidity:	< 95 % r. H., non-precipitating air
Deviation in humidity:	typically **± 1.8** % (10...90 % r. H.) at +25 °C, otherwise ± 2.0 %
Output humidity:	0 - 10 V for U variant 4...20 mA for I variant
TEMPERATURE	
Measuring range, temperature:	**multi-range switching** (see table) **-35...+35 °C; -35...+75 °C; 0...+50 °C; 0...+80 °C**
Ambient temperature:	storage –35...+85 °C; operation –30...+80 °C, non-precipitating
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0 - 10 V for U variant 4...20 mA for I variant
Electrical connection:	2-, 3-, or 4-wire connection (see connection diagram), 0.14 - 1.5 mm², via terminal screws
Cable connection:	**cable gland, stainless steel V2A** (1.4305) (M 20 x 1.5; with strain relief, exchangeable, inner diameter 6 - 12 mm) **or** **M12 connector** (male, 5-pin, A-code) according to DIN EN 61076-2-101
Housing:	**stainless steel V4A** (1.4571), with non-distortion cover bolting, impact resistant, high EMI shielding, corrosion, temperature, weather- and UV-resistant
Housing dimensions:	143 x 97 x 61 mm (Tyr 2E)
Protective tube:	**made from stainless steel V2A** (1.4301), Ø 16 mm, NL = 197 mm
Sensor protection:	**metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)
Process connection:	by screws via the mounting fixture on the housing
Long-term stability:	± 1 % per year
Protection class:	III (according to EN 60730)
Protection type:	**IP 65** (according to EN 60529) Housing tested, TÜV SÜD, Report No. 713160960B (Skadi2)
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	**display with illumination,** three-line, cutout approx. 70 x 40 mm (W x H), to display the ACTUAL temperature and ACTUAL humidity
ACCESSORIES	(see table)

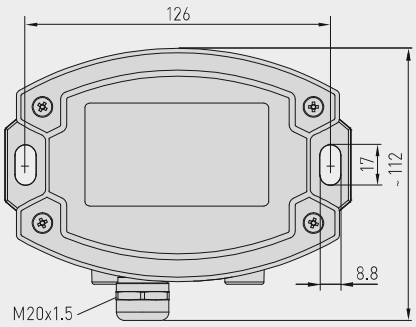
Dimensional drawing

KFTF-20-VA

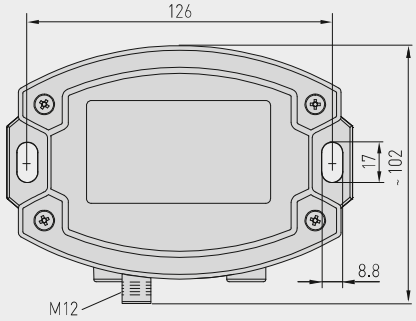




Housing with
cable gland



Housing with
M12 connector



SF-M
Metal sinter filter
(standard)

M12 connector
(male)

KFTF-20-VA
with cable gland
and display

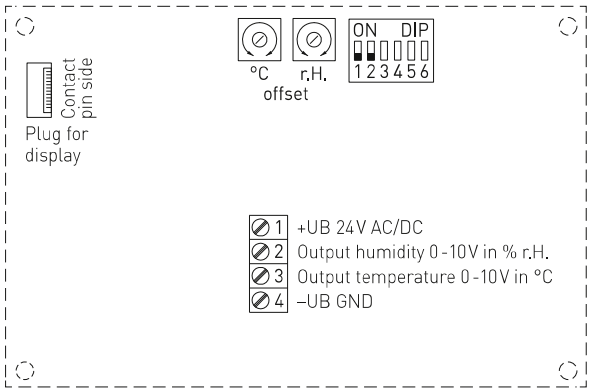
KFTF-20-VAQ
with M12 connector
and display

HYGRASGARD® KFTF-20-VA

Duct humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

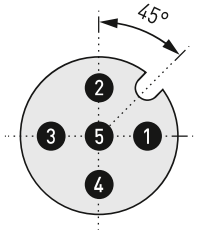
S+S REGELTECHNIK

Schematic diagram **KFTF-xx-U**



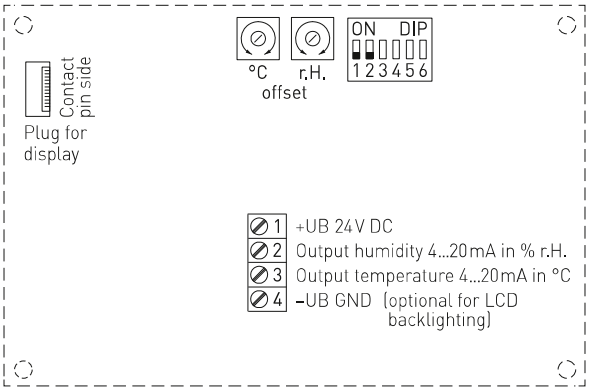
DIP 3, 4, 5, 6 are not assigned!

Pin assignment (M12) **KFTF-xx-U**



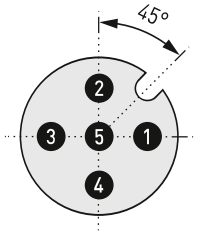
1 +UB 24V AC/DC
2 Output humidity 0-10V [% r.H.]
3 Output temperature 0-10V [°C]
4 –UB GND
5 Shield

Schematic diagram **KFTF-xx-I**



DIP 3, 4, 5, 6 are not assigned!

Pin assignment (M12) **KFTF-xx-I**



1 +UB 24V DC
2 Output humidity 4...20mA [% r.H.]
3 Output temperature 4...20mA [°C]
4 –UB GND (optional for LCD backlighting)
5 Shield

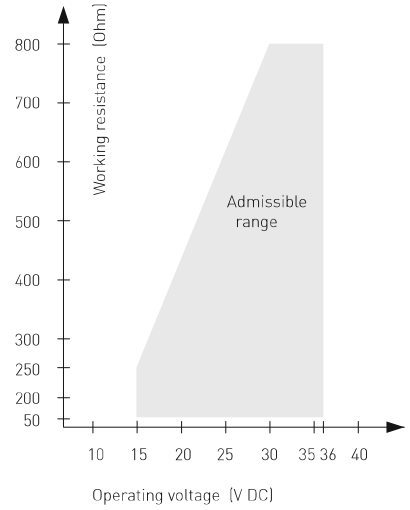
3- or 4-wire connection ** **KFTF-xx-I (Transmitter)**

1 +UB 24V DC
2 Output humidity in % r.H. 4...20mA
3 Output temperature in °C 4...20mA
4 –UB-GND (optional for backlighting)

4-wire connection **KFTF-xx-U**

1 +UB 24V AC/DC
2 Output humidity in % r.H. 0-10V
3 Output temperature in °C 0-10V
4 –UB-GND

Load resistance diagram 4..20mA **KFTF-xx-I**



Connection**:
3-wire connection for devices with/without display (not illuminated)
4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!

Temperature measuring ranges (adjustable)	DIP 1	DIP 2
–35...+75 °C	**ON**	**ON**
–35...+35 °C	OFF	OFF
0...+50 °C (default)	OFF	**ON**
0...+80 °C	**ON**	OFF

Duct humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

KFTF-20-VAQ
with display, hinged

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® KFTF-20-VAQ

Duct humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

KFTF-20-VAQ
with M12 connector

HYGRASGARD® **KFTF-20-VAQ**	Duct humidity and temperature sensors (± 1,8 %), *ID* **(with M12 connector)**						
Type / WG02I	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Display** ● = **Q**	**Item No.**	**Price**
KFTF-20-VAQ							
KFTF-20-I VA**Q**	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	●	2003-4161-2100-001	**630,82 €**
KFTF-20-I VA**Q LCD**	0...100 % r. H.	(4x as above)	4...20 mA	4...20 mA	● ■	2003-4162-2100-001	**778,82 €**
KFTF-20-U VA**Q**	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	●	2003-4161-1100-001	**630,82 €**
KFTF-20-U VA**Q LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	● ■	2003-4162-1100-001	**778,82 €**
Housing variant "Q":	Cable connection **with M12 connector** (male, **5-pin**, A-code)						

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
	For further information, see chapter Accessories!		

Duct humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

KFTF-20-VA
with cable gland

HYGRASGARD® **KFTF-20-VA**	Duct humidity and temperature sensors (± 1,8 %), *ID* (**with cable gland**)						
Type / WG02I	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Display**	**Item No.**	**Price**
KFTF-20-VA							
KFTF-20-I VA	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		2003-4161-2200-001	**594,12 €**
KFTF-20-I VA **LCD**	0...100 % r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	2003-4162-2200-001	**742,12 €**
KFTF-20-U VA	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		2003-4161-1200-001	**594,12 €**
KFTF-20-U VA **LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	2003-4162-1200-001	**742,12 €**
Housing variant:	Cable connection **with cable gland**						

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
	For further information, see chapter Accessories!		

HYGRASGARD® KAVTF

Duct outdoor humidity sensors (± 2.0 %), including mounting flange, for mixture ratio, relative / absolute humidity, dew point, enthalpy (switchable) and temperature, with multi-range switching, with active output

S+S REGELTECHNIK

The universal humidity sensors **HYGR**ASGARD® **KAVTF** with 6 output sizes are used to determine diverse characteristic variables in humidity measurement. The relative humidity and temperature of the ambient air are measured. From these measurands, the different characteristic variables are internally calculated.

For device version x-U, two outputs of 0 - 10 V are available, for Version x-I two outputs of 4...20 mA. Here, the output variables for these outputs can be defined using DIP switches. Selectable for output 1 are relative humidity [% r. H.], absolute humidity [g / m³], mixture ratio [g / kg], dew point temperature [°C], or enthalpy [kJ / kg] (while neglecting the atmospheric air pressure). At output 2, four different measuring ranges for ambient temperature [°C] are selectable. Ex-factory condition (default) for output 1 is relative humidity 0...100 % r. H., for output 2 temperature measuring range 0...+50 °C.

Due to the different configuration alternatives provided, numerous measurement and control tasks can be solved by just one device. These devices are to be operated in pollutant-free non-precipitating air, with neither above-atmospheric nor below-atmospheric pressure at the sensors. Application examples include medical technology, refrigeration, air conditioning, and clean room technology. These sensors are appropriate for duct installation.

TECHNICAL DATA

Power supply:	24 V AC (± 20 %); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (ohm) = (U_b -14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1 W at 24 V DC; < 2 VA at 24 V AC
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
HUMIDITY	
Measuring range, humidity:	**multi-range switching with** **8 switchable measuring ranges** (see table) 0...100 % r. H. (default)
Operating range, humidity:	10...95 % r. H., without formation of dew
Deviation, humidity:	typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 % Deviations of other outputs result from deviations of humidity and temperature.
Output 1, humidity:	0 - 10 V for U variant (see table) 4...20 mA for I variant (see table)
TEMPERATURE	
Measuring range, temperature:	**multi-range switching with** **4 switchable measuring ranges** (see table) 0...+50 °C (default); –20...+80 °C; –35...+75 °C; –35...+35 °C
Operating range, temperature:	–35...+85 °C sensors
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output 2, temperature:	0 - 10 V for U variant (see table) 4...20 mA for I variant (see table)
Ambient temperature:	storage –35...+85 °C; operation –30...+70 °C, non-precipitating
Electrical connection:	4-wire connection for U variant 3-wire connection for I variant (Transmitter) 0.14 - 1.5 mm², via terminal screws
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Typ 1 without display) 72 x 64 x 43.3 mm (Typ 1 with display)
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (on request)
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection Ø 20 mm, NL = 235 mm, v_{max} = 30 m/s (air) (on request, optional **stainless steel V2A** (1.4301), Ø 16 mm)
Process connection:	by mounting flange, plastic (included in the scope of delivery)
Protection class:	III (according to EN 60730)
Protection type:	**IP65** (according to EN 60529) in the built-in state, Housing tested, TÜV SÜD, Report No. 713139052 (Typ 1)
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC directive 2014 / 30 / EU
Optional:	two-line **display with illumination,** cutout approx. 36 x 15 mm (W x H), for displaying actual temperature and actual humidity, as well as the selectable output variables
ACCESSORIES	see last chapter

SF-K
Plastic sinter filter (standard)

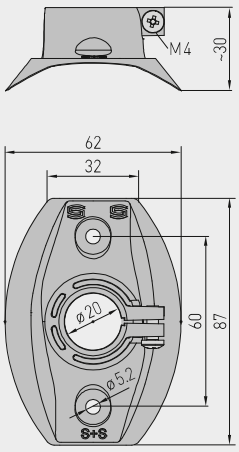
SF-M
Metal sinter filter (optional)

Protective tube stainless steel
(optional on request)

M12 connector
(optional on request)

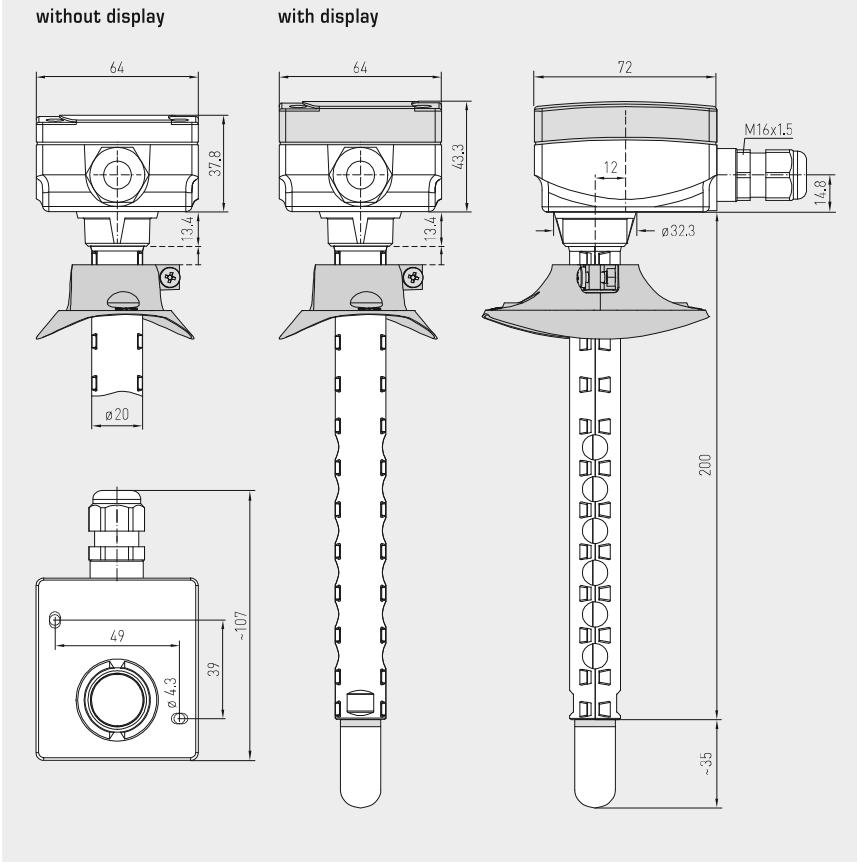
MFT-20-K
Mounting flange, plastic

Dimensional drawing **MFT-20-K**



Duct outdoor humidity sensors (± 2.0 %), including mounting flange, for mixture ratio, relative / absolute humidity, dew point, enthalpy (switchable) and temperature, with multi-range switching, with active output

Dimensional drawing — **KAVTF**



KAVTF
with plastic sinter filter (standard)

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: –20...+80 °C

°C	U_A in V	I_A in mA
-20	0.0	4.0
-15	0.5	4.8
-10	1.0	5.6
-5	1.5	6.4
0	2.0	7.2
5	2.5	8.0
10	3.0	8.8
15	3.5	9.6
20	4.0	10.4
25	4.5	11.2
30	5.0	12.0
35	5.5	12.8
40	6.0	13.6
45	6.5	14.4
50	7.0	15.2
55	7.5	16.0
60	8.0	16.8
65	8.5	17.6
70	9.0	18.4
75	9.5	19.2
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

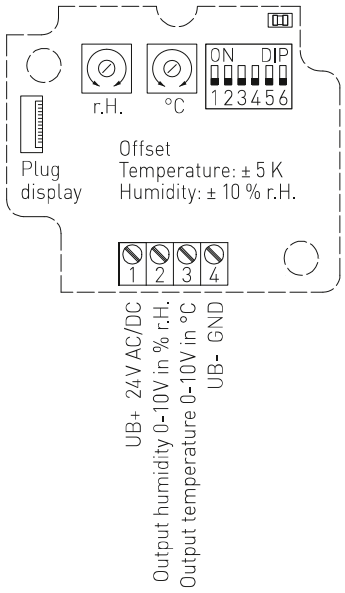
% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® KAVTF

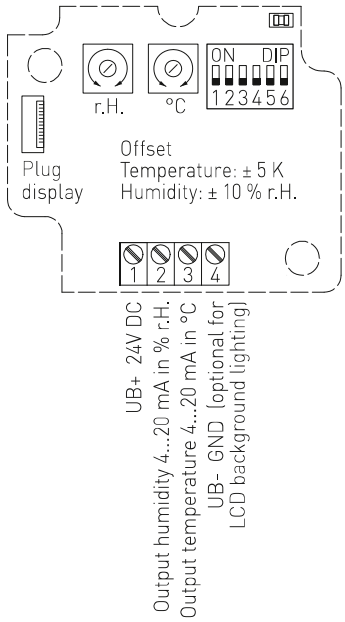
Duct outdoor humidity sensors (± 2.0 %), including mounting flange, for mixture ratio, relative / absolute humidity, dew point, enthalpy (switchable) and temperature, with multi-range switching, with active output

S+S REGELTECHNIK

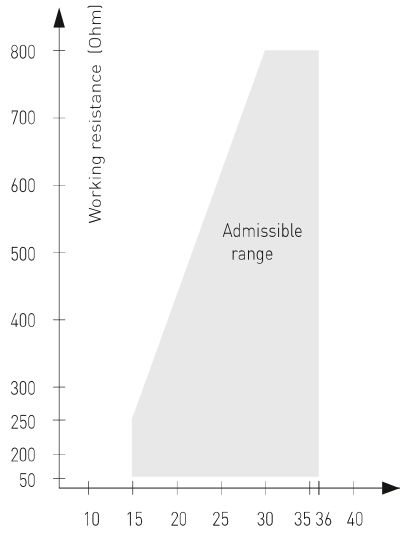
Schematic diagram **KAVTF-U** with display



Schematic diagram **KAVTF-I** with display



Load resistance diagram **KAVTF-I** 4.. 20 mA



Temperature measuring ranges (adjustable)	DIP 1	DIP 2
0...+50 °C (default)	OFF	OFF
–20...+80 °C	**ON**	OFF
–35...+75 °C	OFF	**ON**
–35...+35 °C	**ON**	**ON**

Switchable measuring ranges (adjustable)	DIP 3	DIP 4	DIP 5
r.H.: **0...100 %** (default)	OFF	OFF	OFF
MR: 0...50 g / kg	**ON**	OFF	OFF
MR: 0...80 g / kg	OFF	**ON**	OFF
A.H.: 0...50 g / m³	OFF	OFF	**ON**
A.H.: 0...80 g / m³	**ON**	**ON**	OFF
DP: 0...+50 °C	**ON**	OFF	**ON**
DP: –20...+80 °C	OFF	**ON**	**ON**
ENT.: 0...85 kJ / kg	**ON**	**ON**	**ON**

Possible parameters:

(r.H.) = relative humidity in %
(MR) = mixture ratio in g / kg
(A.H.) = absolute humidity in g / m³
(DP) = dew point in °C
(ENT.) = enthalpy in kJ / kg

Service display / output (adjustable)	DIP 6
Display °C and % r.H., output of set measurements via DIP 1-5 (service mode for setting °C and % r.H.)	**ON**
Display and output of set measurements via DIP 1-5	OFF

KAVTF
with plastic sinter filter
SF-K (standard)

KAVTF
with metal sinter filter
SF-M (optional)

Duct outdoor humidity sensors (± 2.0 %), including mounting flange, for mixture ratio, relative / absolute humidity, dew point, enthalpy (switchable) and temperature, with multi-range switching, with active output

Display Standard — **KAVTF Display**

Displays alternative output variables — **KAVTF Display**

Displays service mode — **KAVTF Display**

By default, the display alternates between the **actual temperature** and the **actual humidity** (relative humidity). In this case, the first line displays the value while the second line displays the corresponding unit:

Temperature in °C
Relative humidity in % r.H.

For improved legibility, backlighting is provided.

DIP switches can be used to display an **alternative output variable** instead of the standard display:

Absolute humidity in g / m³
Dew point in °C
Mixture ratio in g / kg
Enthalpy in kJ / kg

The **service mode** simultaneously displays (alternately in the first and second lines) the **actual temperature** and the **actual humidity** (relative humidity).

KAVTF with display

HYGRASGARD® KAVTF Duct outdoor humidity sensors (± 2.0 %)

Type / WG01	Measuring Range Humidity	Temperature	Output Humidity	Display Temperature		Item No.	Price
KAVTF-I	(switchable)	(switchable)				**I-variant**	
KAVTF-I	0 ...100 % r. H. (default) 0...50 g / kg (MR) 0...80 g / kg (MR) 0...50 g / m³ (A.H.) 0...80 g / m³ (A.H.) 0...+50 °C (DP) –20...+80 °C (DP) 0...85 kJ / kg (ENT.)	0...+50 °C (default) –20...+80 °C –35...+75 °C –35...+35 °C	4...20 mA	4...20 mA		1201-3162-6000-029	**178,51 €**
KAVTF-I **LCD**	(8x as above)	(4x as above)	4...20 mA	4...20 mA	■	1201-3162-6200-029	**236,11 €**
KAVTF-U						**U-variant**	
KAVTF-U	(8x as above)	(4x as above)	0-10 V	0-10 V		1201-3161-6000-029	**178,51 €**
KAVTF-U **LCD**	(8x as above)	(4x as above)	0-10 V	0-10 V	■	1201-3161-6200-029	**236,11 €**
Extra charge:	Other non-standard ranges optional						**142,35 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101					on request	

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**

HYGRASGARD® RPFF-SD

Pendulum room humidity sensors (± 2.0 %), calibratable, with active output

S+S REGELTECHNIK

The calibratable pendulum room humidity sensor **HYGR**ASGARD® **RPFF-SD** with plastic sinter filter measures the relative humidity of air. It converts the measurand humidity into a standard signal of 4...20 mA. Relative humidity (in % r. H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature.

The sensor applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, hotels, technical rooms, meeting rooms and convention centres. These measuring transducers are designed for precise detection of humidity. A digital long-term stable sensor is used as a measuring element for humidity measurement. This sensor is suitable for duct installation, as a pendulum sensor, or for integration in equipment.

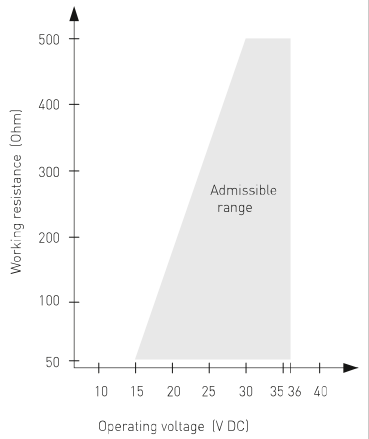
TECHNICAL DATA

Power supply:	15...36 V DC depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (Ohm) = (U_b-14 V) / 0.03 A R_a < 500 Ohm
Power consumption:	< 1.1 VA / 24 V DC
Sensors:	**digital humidity sensor** small hysteresis, high long-term stability
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
Measuring range, humidity:	0...100 % r. H. (output corresponding to 4...20 mA)
Operating range, humidity:	0...95 % r. H. (without formation of dew)
Deviation, humidity:	typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 %
Output, humidity:	4...20 mA, see load resistance diagram
Ambient temperature:	storage –25...+50 °C operation –5...+55 °C
Long-term stability:	± 1 % per year
Electrical connection:	2-wire connection (see connecting diagram), 0.14 - 1.5 mm²
Connection cable:	PVC, LiYY, 2 x 0.25 mm², KL = approx. 1.5 m (other lengths optional)
Protective tube:	**stainless steel V2A** (1.4301), Ø = 16 mm, NL = 142 mm
Protection class:	III (according to EN 60730)
Protection type:	**IP 65** (according to EN 60529)
Standards:	CE conformity, according to EMC directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
ACCESSORIES	see last chapter

Humidity table
MR: 0...100 % r. H.

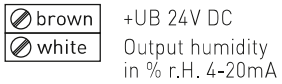
% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

Load resistance diagram 4...20 mA **RPFF-SD**

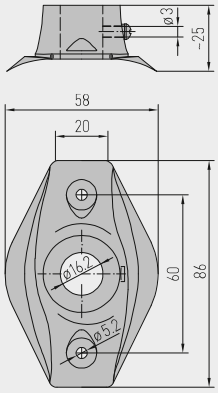


Circuit board **RPFF-SD**

2-wire connection **RPFF-SD-I (Transmitter)**



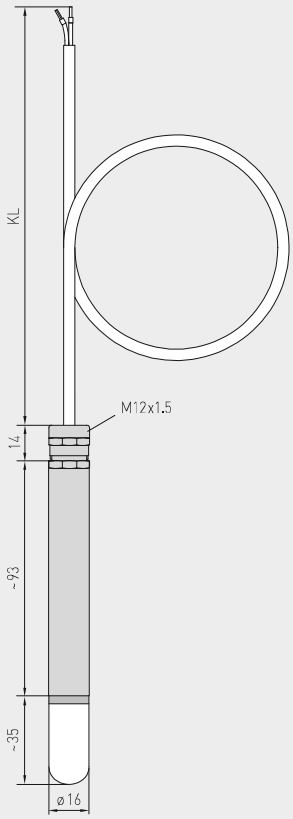
Dimensional drawing **MF-16-K**



MF-16-K

Mounting flange, plastic (optional)

Dimensional drawing **RPFF-SD**



RPFF-SD

with plastic sinter filter (standard)

SF-M

Metal sinter filter (optional)

HYGRASGARD® RPFF-SD Pendulum room humidity sensors (± 2.0 %), *Standard*				
Type / WG01	**Measuring Range** Humidity (relative)	**Output** Humidity (relative)	**Item No.**	**Price**
RPFF-SD-I			**I- variant**	
RPFF-SD-I	0...100 % r. H.	4...20 mA	1201-1172-0000-150	**148,69 €**
Extra charge:	**Cable length** (KL) 1.5 m, other lengths optional		on request	
For special orders please specify:	Type, cable length e.g. RPFF-SD-I, 3 m; RPFF-SD-I, 4 m			

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
MF-16-K	Mounting flange, plastic	7100-0030-0000-000	**9,10 €**
	For further information see last chapter!		

HYGRASGARD® RPFF
HYGRASGARD® RPFTF

Pendulum room humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

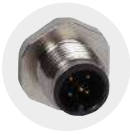
S+S REGELTECHNIK

The calibratable pendulum room humidity and temperature sensor **HYGR**ASGARD® **RPFF / RPFTF** with plastic sinter filter measures the relative humidity and temperature of air. It converts the measurands into standard signals of 0 - 10 V or 4...20 mA and is available with or without an optional display. It has four switchable temperature ranges. The sensor is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, hotels, technical rooms, meeting rooms and convention centres. These measuring transducers are designed for exact detection of temperature and humidity. A digital long-term stable sensor is used as a measuring element for humidity and temperature measurement. The sensor is appropriate for ceiling and duct installation, or for integrating it into equipment. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

RPFF
RPFTF
with plastic sinter filter (standard)

TECHNICAL DATA

Power supply:	24 V AC (± 20 %); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (ohm) = (U_b -14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1.1 VA / 24 V DC ; < 2.2 VA / 24 V AC
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
Sensor protection:	**plastic** sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional **metal** sinter filter, Ø 16 mm, L = 32 mm)
HUMIDITY	
Measuring range, humidity:	0...100 % r. H. (output corresponding to 0 -10 V or 4...20 mA)
Operating range, humidity:	0...95 % r. H. (without formation of dew)
Deviation, humidity:	typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 %
Output, humidity:	0 - 10 V for U variant 4...20 mA for I variant, see load resistance diagram
TEMPERATURE	
Measuring range, temperature:	**multi-range switching with** **4 switchable measuring ranges** (see table) –35...+35 °C; –35...+75 °C; 0...+50 °C; 0...+80 °C (output corresponding to 0 -10 V or 4...20 mA)
Operating range, temperature:	–35...+80 °C
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0 -10 V or 4...20 mA or Ohm value
Ambient temperature:	storage –5...+60 °C operation –5...+60 °C
Long-term stability:	± 1 % per year
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (on request)
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm² via terminal screws
Connection cable:	PVC, LiYY, 6 x 0.14 mm², KL = approx. 2 m (other lengths optional)
Protective tube:	**stainless steel V2A** (1.4301), Ø = 16 mm, NL = 142 mm
Protection class:	III (according to EN 60 730)
Protection type:	**IP 67** (according to EN 60 529) Housing tested TÜV SÜD, Report No. 713139052 (Tyr 1) **IP 65** (according to EN 60 529) Pendulum with sleeve
Standards:	CE conformity, according to EMC directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	two-line **display with illumination,** cutout approx. 36 x 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity
ACCESSORIES	see last chapter



M12 connector
(optional on request)

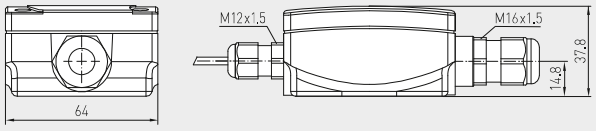
MF-16-K
Mounting flange, plastic
(optional)

Pendulum room humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

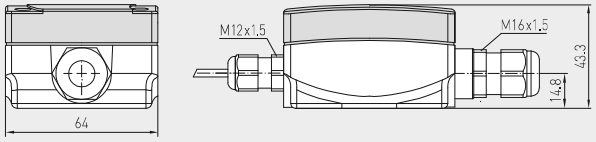
Dimensional drawing

RPFF
RPFTF

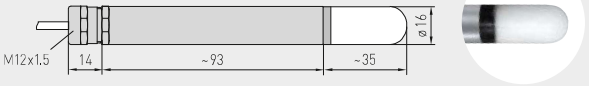
without display



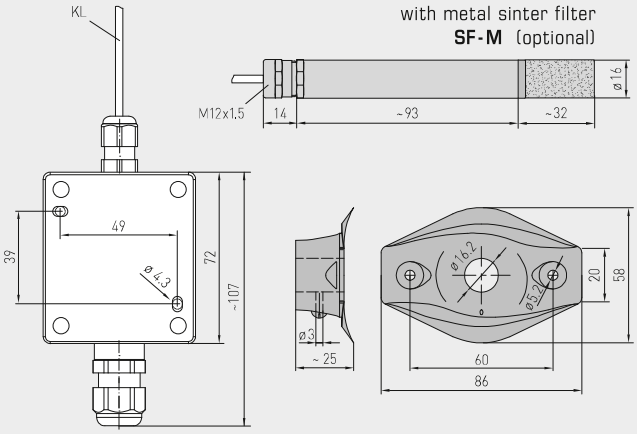
with display



with plastic sinter filter
SF-K (standard)



with metal sinter filter
SF-M (optional)



MF-16-K
(optional)

RPFF
RPFTF
with display and plastic sinter filter (standard)

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

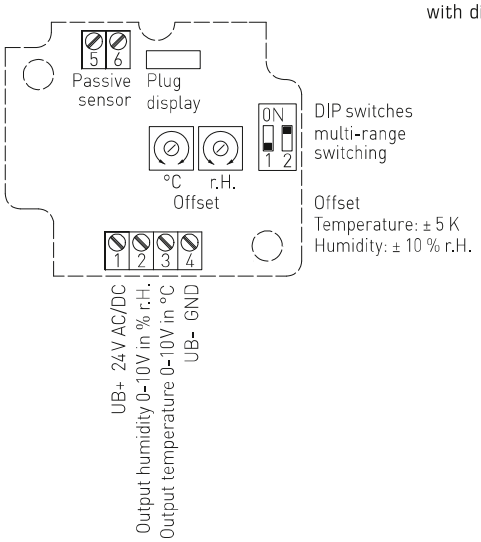
% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® RPFF
HYGRASGARD® RPFTF

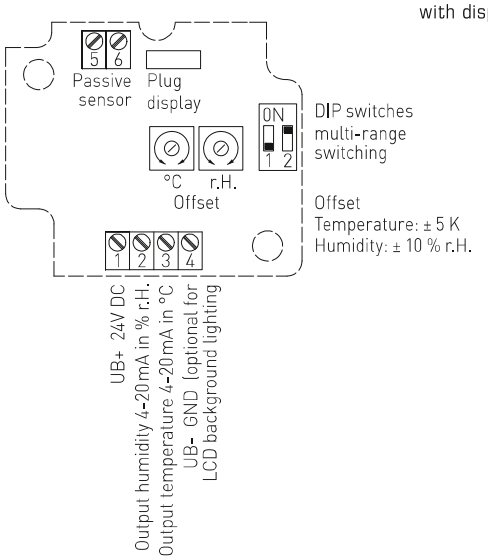
Pendulum room humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

Schematic diagram — **RPFTF-U** with display



Schematic diagram** — **RPFTF-I** with display



3-wire connection — **RPFF-U**

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Free
4	–UB-GND

2- or 3-wire connection* — **RPFF-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Free
4	–UB-GND (optional for backlighting)

4-wire connection — **RPFTF-U**

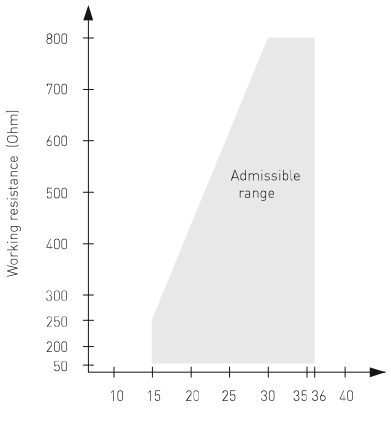
1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	–UB-GND

3- or 4-wire connection** — **RPFTF-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Output temperature in °C 4-20mA
4	–UB-GND (optional for backlighting)

Temperature measuring ranges (adjustable)	DIP 1	DIP 2
–35…+75 °C	**ON**	**ON**
–35…+35 °C	OFF	OFF
0…+50 °C (default)	OFF	**ON**
0…+80 °C	**ON**	OFF

Load resistance diagram 4…20 mA — **RPFF RPFTF**



Connection*:

2-wire connection for devices with / without display (not illuminated)

3-wire connection for devices with illuminated display

Connection**:

3-wire connection for devices with / without display (not illuminated)

4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!

RPFF
RPFTF
with display

HYGRASGARD® **RPFF**	Pendulum room humidity sensors (± 2.0 %), *Premium*
HYGRASGARD® **RPFTF**	Pendulum room humidity and temperature sensors (± 2.0 %), *Premium*

Type / WG01	**Measuring Range / Readout** Humidity	Temperature	**Output** Humidity	Temperature	**Item No.**	**Price**
RPFF						
RPFF-I	0...100 % r. H.	–	4...20 mA	–	1201-1172-0000-100	**189,13 €**
RPFF-U	0...100 % r. H.	–	0-10 V	–	1201-1171-0000-100	**189,13 €**
RPFTF						
RPFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA	1201-1172-1000-100	**193,37 €**
RPFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V	1201-1171-1000-100	**193,37 €**
Extra charge:	Two-line **display with illumination** **Cable length** (KL = 2 m), other lengths optional up to max. 5 m				on request	**47,46 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101				on request	

ACCESSORIES			
SF-M	**Metal** sinter filter, Ø 16 mm, L = 32 mm, exchangeable stainless steel **V4A** (1.4404)	7000-0050-2200-100	**40,31 €**
MF-16-K	**Mounting flange,** plastic	7100-0030-0000-000	**9,10 €**
	For further information see last chapter!		

HYGRASGARD® RPFF-25
HYGRASGARD® RPFTF-25

Pendulum room humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

The calibratable pendulum room humidity and temperature sensor **HYGR**ASGARD® **RPFF-25** / **RPFTF-25** with pluggable metal sinter filter, housing made of impact-resistant plastic, with / without optional display.
It measures the relative humidity and/or the temperature of the air and converts the measurands into a standard signal of 0-10 V or 4...20 mA. It is equipped with four switchable temperature ranges. The sensor is applied in non-aggressive dust-free atmospheres in refrigeration, air conditioning, ventilation and clean room technology, hotels, technical rooms, meeting rooms and convention centres. These measuring transducers are designed for exact detection of temperature and humidity. A digital long-term stable sensor is used as measuring element for humidity and temperature measurement. The sensor is appropriate for ceiling and duct installation, or for integrating it into equipment. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

RPFF-25 / RPFTF-25 (± 1.8 %)
pluggable measuring head
with metal sinter filter

TECHNICAL DATA

Power supply:	24 V AC (± 20 %); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (ohm) = (U_b -14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1.1 VA / 24 V DC; < 2.2 VA / 24 V AC
Sensors:	**digital humidity sensor with integrated temperature sensor,** small hysteresis, high long-term stability, sensor head pluggable
Sensor protection:	**pluggable measuring head** (probe) with **metal** sinter filter, Ø 16 mm, L = 88.5 mm, exchangeable
HUMIDITY	
Measuring range, humidity:	0...100 % r. H. (output corresponding to 0-10 V or 4...20 mA)
Operating range, humidity:	0...95 % r. H. (without formation of dew)
Deviation, humidity:	typically **± 1.8** % (10...90 % r. H.) at +25 °C, otherwise ± 2.0 %
Output, humidity:	0-10 V for U variant 4...20 mA for I variant, see load resistance diagram
TEMPERATURE	
Measuring range, temperature:	**multi-range switching with** **4 switchable measuring ranges** (see table) –35...+35 °C; –35...+75 °C; 0...+50 °C; 0...+80 °C (output corresponding to 0-10 V or 4...20 mA)
Deviation, temperature:	typically ± 0.2 K at +25 °C
Output, temperature:	0-10 V or 4...20 mA or Ohm value
Ambient temperature:	storage –35...+85 °C operation –30...+70 °C
Long-term stability:	± 1 % per year
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm² via terminal screws
Connection cable:	KL = 2 m
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	126 x 90 x 50 mm (Tyr 2)
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (on request)
Protective tube:	**stainless steel V2A** (1.4301), Ø = 18 mm (16 mm), L = 120 mm
Protection class:	III (according to EN 60 730)
Protection type:	**IP 65** (according to EN 60 529)
Standards:	CE conformity, according to EMC directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	three-line **display with illumination,** cutout approx. 70 x 40 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity
ACCESSORIES	see last chapter

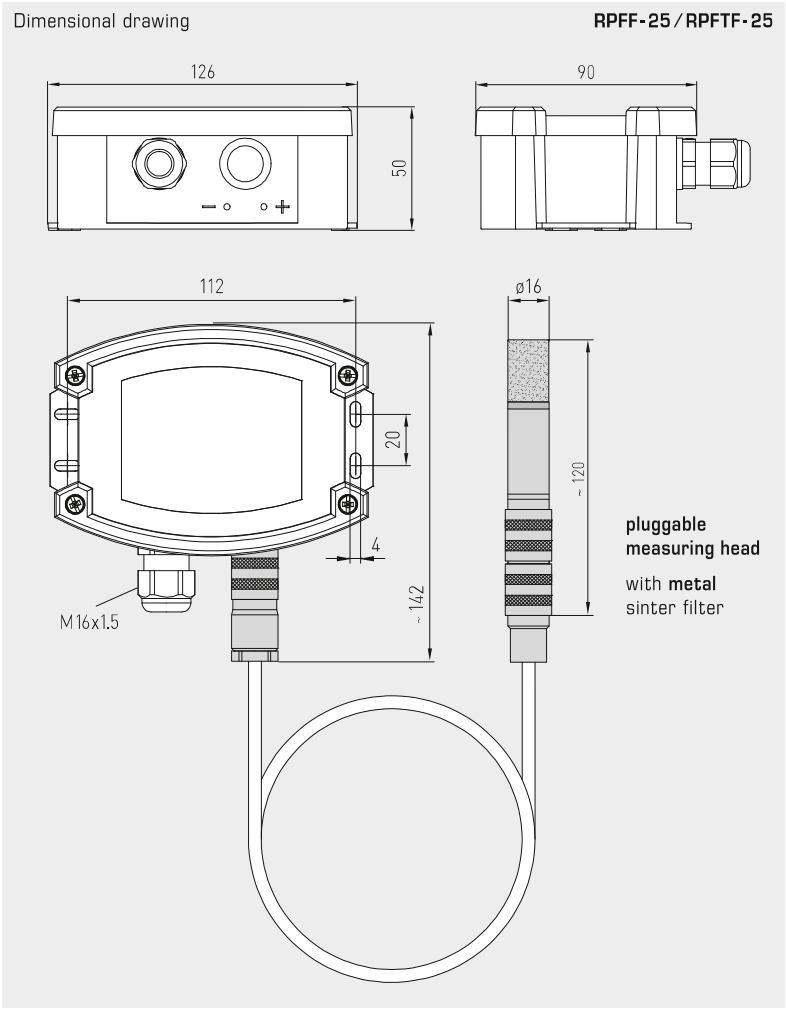
M12 connector
(optional on request)

MF-16-K
Mounting flange,
plastic
(optional)

HYGRASGARD® RPFF-25
HYGRASGARD® RPFTF-25

Pendulum room humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

Dimensional drawing — **RPFF-25 / RPFTF-25**



RPFF-25 / RPFTF-25 (± 1.8 %)
pluggable measuring head
with metal sinter filter and display

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

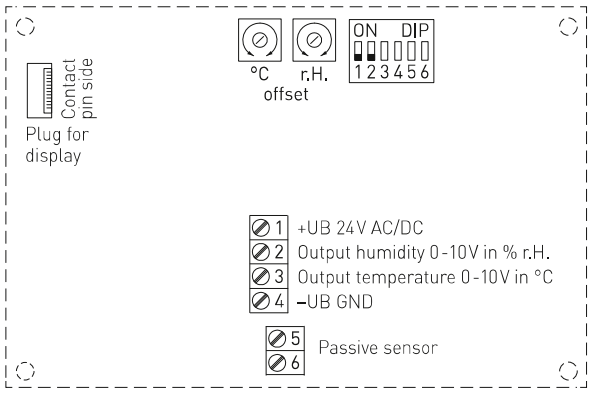
% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® RPFF-25
HYGRASGARD® RPFTF-25

Pendulum room humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

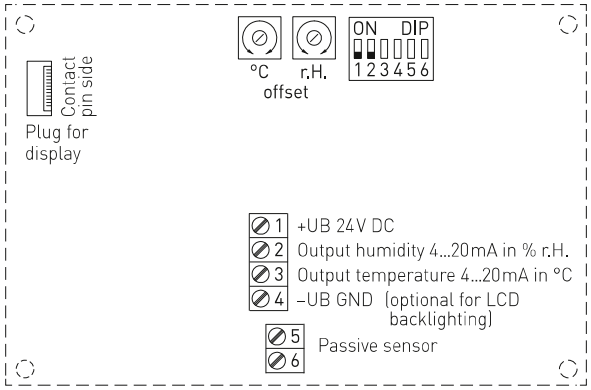
S+S REGELTECHNIK

Schematic diagram — **RPFTF-25-U** with display



DIP 3, 4, 5, 6 are not assigned!

Schematic diagram** — **RPFTF-25-I** with display



DIP 3, 4, 5, 6 are not assigned!

3-wire connection — **RPFF-25-U**

1 +UB 24V AC/DC
2 Output humidity in % r.H. 0-10V
3 Free
4 –UB-GND

2- or 3-wire connection* — **RPFF-25-I (Transmitter)**

1 +UB 24V DC
2 Output humidity in % r.H. 4-20mA
3 Free
4 –UB-GND (optional for backlighting)

4-wire connection — **RPFTF-25-U**

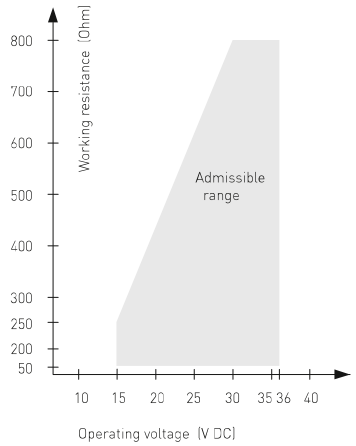
1 +UB 24V AC/DC
2 Output humidity in % r.H. 0-10V
3 Output temperature in °C 0-10V
4 –UB-GND

3- or 4-wire connection** — **RPFTF-25-I (Transmitter)**

1 +UB 24V DC
2 Output humidity in % r.H. 4-20mA
3 Output temperature in °C 4-20mA
4 –UB-GND (optional for backlighting)

Temperature measuring ranges (adjustable)	**DIP 1**	**DIP 2**
–35...+75 °C	**ON**	**ON**
–35...+35 °C	OFF	OFF
0...+50 °C (default)	OFF	**ON**
0...+80 °C	**ON**	OFF

Load resistance diagram 4..20 mA — **RPFF-25 RPFTF-25**



Connection*:

2-wire connection for devices with / without display (not illuminated)

3-wire connection for devices with illuminated display

Connection**:

3-wire connection for devices with / without display (not illuminated)

4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!

HYGRASGARD® RPFF-25
HYGRASGARD® RPFTF-25

Pendulum room humidity and temperature sensors (± 1.8 %), calibratable, with multi-range switching and active output

RPFF-25 / RPFTF-25 (± 1.8 %)
with display

HYGRASGARD® RPFF-25	Pendulum room humidity sensors, pluggable (± 1.8 %), *Deluxe*
HYGRASGARD® RPFTF-25	Pendulum room humidity and temperature sensors, pluggable (± 1.8 %), *Deluxe*

Type / WG02	Measuring Range / Readout Humidity	Temperature	Output Humidity	Temperature	Display	Item No.	Price
RPFF-25-I						**I-variant**	
RPFF-25-I	0...100 % r. H.	–	4... 20 mA	–		1201-7122-0000-100	**394,02 €**
RPFF-25-I **LCD**	0...100 % r. H.	–	4... 20 mA	–	■	1201-7122-0400-100	**441,47 €**
RPFF-25-U						**U-variant**	
RPFF-25-U	0...100 % r. H.	–	0-10 V	–		1201-7121-0000-100	**394,02 €**
RPFF-25-U **LCD**	0...100 % r. H.	–	0-10 V	–	■	1201-7121-0400-100	**441,47 €**
RPFTF-25-I						**I-variant**	
RPFTF-25-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4... 20 mA	4... 20 mA		1201-7122-1000-100	**414,64 €**
RPFTF-25-I **LCD**	0...100 % r. H.	(4x as above)	4... 20 mA	4... 20 mA	■	1201-7122-1400-100	**462,09 €**
RPFTF-25-U						**U-variant**	
RPFTF-25-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-7121-1000-100	**414,64 €**
RPFTF-25-U **LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	1201-7121-1400-100	**462,09 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101					on request	

ACCESSORIES			
MSK-25	Pluggable **measuring head** (sensor), stainless steel **V2A** (1.4301), **metal** sinter filter, Ø 16 mm, L = 88.5 mm, exchangeable, as replacement element for **RPFF-25 / RPFTF-25**	7201-1131-0000-000	**204,90 €**
MF-16-K	**Mounting flange,** plastic	7100-0030-0000-000	**9,10 €**
	For further information see last chapter!		

HYGRASGARD® VFF
HYGRASGARD® VFTF

Showcase humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

The calibratable humidity and temperature sensor **HYGR**ASGARD® **VFF / VFTF** measures the relative humidity and temperature of air. It converts the measurands humidity and temperature into a standard signal of 0 - 10 V or 4...20 mA, and is available with / without an optional display.
It is equipped with four switchable temperature ranges. Relative humidity (in % r.H.) is the quotient of water vapour partial pressure divided by the saturation vapour pressure at the respective gas temperature. The measuring transducers are designed for exact detection of temperature and humidity. A digital, long-term stable sensor is used as a measuring element for humidity and temperature measurement. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

The showcase sensor is used in non-aggressive, dust-free environments and is specifically designed for installation in ceilings, walls, inside showcases or display cabinets in museums, galleries, cinemas or lecture halls or laboratories. The measuring element is contained inside a stainless steel probe and its low height (approx. 2.5 mm) makes it barely noticeable.

VFF
VFTF

TECHNICAL DATA

Power supply:	24 V AC (± 20 %) and 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ± 0.3 V
Working resistance:	R_a (Ohm) = (U_b -14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1.1 VA / 24 V DC; < 2.2 VA / 24 V AC
Sensors:	**digital humidity sensor with integrated temperature sensor,** low hysteresis, high long-term stability
HUMIDITY	
Measuring range, humidity:	0...100 % r.H. (output corresponding to 0 - 10 V or 4...20 mA)
Operating range, humidity:	0...95 % r. H. (without formation of dew)
Deviation in humidity:	typically **± 2.0** % (20...80 % r. H.) at +25 °C, otherwise ± 3.0 %
Output, humidity:	0 - 10 V for U variant 4...20 mA for I variant, see load resistance diagram
TEMPERATURE	
Measuring range, temperature:	**multi-range switching with** **4 switchable measuring ranges** (see table) –35...+35 °C; –35...+75 °C; 0...+50 °C; 0...+80 °C (output corresponding to 0 - 10 V or 4...20 mA)
Deviation, temperature:	typically ± 0.2 K at +25 °CC
Output, temperature:	0 - 10 V or 4...20 mA
Ambient temperature:	storage –5...+60 °C; operation –5...+60 °C
Long-term stability:	± 1 % per year
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), housing cover for display is transparent!
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) **or** **M12 connector** according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	2-, 3-, or 4-wire connection (see connecting diagram), 0.14 - 1.5 mm², via terminal screws
Connecting cable:	PVC, LiYY, 4 x 0.14 mm², cable length (KL) = 2 m
Sensor protection:	**probe** made of stainless steel, **V4A** (1.4571), **pluggable**; sensor head Ø = 17 mm, H = approx. 2.5 mm; protective sleeve Ø = 10 mm, NL = approx. 25 mm, M10 x 1.0; with plastic plug connector Ø = approx. 11 mm, NL = approx. 25 mm,
Mounting (sensor):	cut-out Ø = 11 - 15 mm, inserted length (EL) = approx. 50 mm, lock nut for fixing is included in the scope of delivery.
Protection class:	III (according to EN 60 730)
Protection type:	**IP 67** (according to EN 60 529) Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) **IP 65** (according to EN 60 529) Probe
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Optional:	two-line **display with illumination**, cut-out approx. 36 x 15 mm (W x H), for displaying ACTUAL temperature and / or ACTUAL humidity

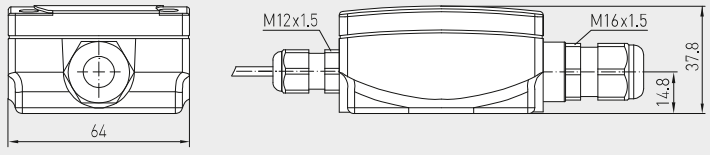
M12 connector
(optional on request)

VFF
VFTF
Probe made of stainless steel, pluggable

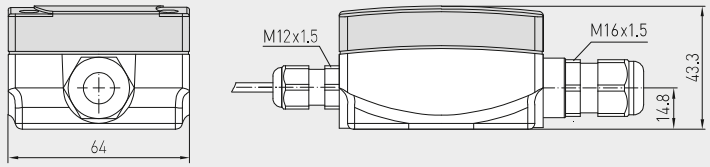
Dimensional drawing

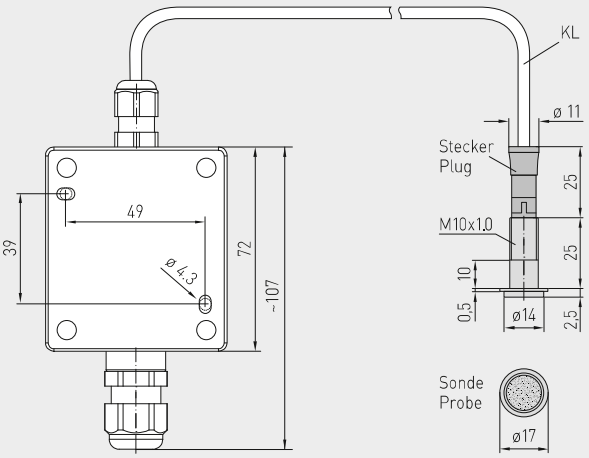
VFF
VFTF

without display



with display





VFF
VFTF
with display

Temperature table
MR: –35...+75 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.5	4.7
-25	0.9	5.5
-20	1.4	6.2
-15	1.8	6.9
-10	2.3	7.6
-5	2.7	8.4
0	3.2	9.1
5	3.6	9.8
10	4.1	10.5
15	4.5	11.3
20	5.0	12.0
25	5.5	12.7
30	5.9	13.5
35	6.4	14.2
40	6.8	14.9
45	7.3	15.6
50	7.7	16.4
55	8.2	17.1
60	8.6	17.8
65	9.1	18.5
70	9.5	19.2
75	10.0	20.0

Temperature table
MR: –35...+35 °C

°C	U_A in V	I_A in mA
-35	0.0	4.0
-30	0.7	5.1
-25	1.4	6.3
-20	2.1	7.4
-15	2.9	8.6
-10	3.6	9.7
-5	4.3	10.9
0	5.0	12.0
5	5.7	13.1
10	6.4	14.3
15	7.1	15.4
20	7.9	16.6
25	8.6	17.7
30	9.3	18.9
35	10.0	20.0

Temperature table
MR: 0...+50 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	1.0	5.6
10	2.0	7.2
15	3.0	8.8
20	4.0	10.4
25	5.0	12.0
30	6.0	13.6
35	7.0	15.2
40	8.0	16.8
45	9.0	18.4
50	10.0	20.0

Temperature table
MR: 0...+80 °C

°C	U_A in V	I_A in mA
0	0.0	4.0
5	0.6	5.0
10	1.3	6.0
15	1.9	7.0
20	2.5	8.0
25	3.1	9.0
30	3.8	10.0
35	4.4	11.0
40	5.0	12.0
45	5.6	13.0
50	6.3	14.0
55	6.9	15.0
60	7.5	16.0
65	8.1	17.0
70	8.8	18.0
75	9.4	19.0
80	10.0	20.0

Humidity table
MR: 0...100 % r. H.

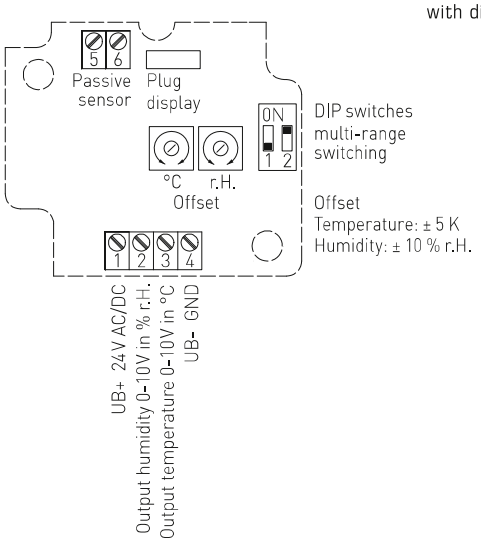
% r.H.	U_A in V	I_A in mA
0	0.0	4.0
5	0.5	4.8
10	1.0	5.6
15	1.5	6.4
20	2.0	7.2
25	2.5	8.0
30	3.0	8.8
35	3.5	9.6
40	4.0	10.4
45	4.5	11.2
50	5.0	12.0
55	5.5	12.8
60	6.0	13.6
65	6.5	14.4
70	7.0	15.2
75	7.5	16.0
80	8.0	16.8
85	8.5	17.6
90	9.0	18.4
95	9.5	19.2
100	10.0	20.0

HYGRASGARD® VFF
HYGRASGARD® VFTF

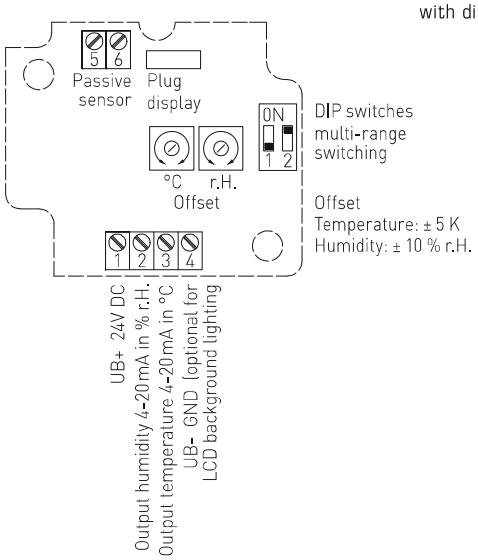
Showcase humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

S+S REGELTECHNIK

Schematic diagram **VFTF-U** with display



Schematic diagram** **VFTF-I** with display



3-wire connection **VFF-U**

1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Free
4	–UB-GND

2- or 3-wire connection* **VFF-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Free
4	–UB-GND (optional for backlighting)

4-wire connection **VFTF-U**

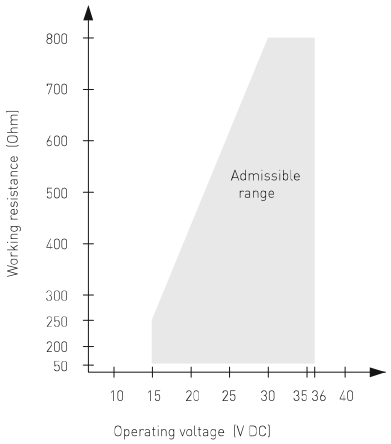
1	+UB 24V AC/DC
2	Output humidity in % r.H. 0-10V
3	Output temperature in °C 0-10V
4	–UB-GND

3- or 4-wire connection** **VFTF-I (Transmitter)**

1	+UB 24V DC
2	Output humidity in % r.H. 4-20mA
3	Output temperature in °C 4-20mA
4	–UB-GND (optional for backlighting)

Temperature measuring ranges (adjustable)	DIP 1	DIP 2
–35…+75 °C	**ON**	**ON**
–35…+35 °C	OFF	OFF
0…+50 °C (default)	OFF	**ON**
0…+80 °C	**ON**	OFF

Load resistance diagram 4…20 mA **VFF VFTF**



Connection*:

2-wire connection for devices with / without display (not illuminated)

3-wire connection for devices with illuminated display

Connection**:

3-wire connection for devices with / without display (not illuminated)

4-wire connection for devices with illuminated display

For the **I variant** the humidity path must be connected!

HYGRASGARD® VFF
HYGRASGARD® VFTF

Showcase humidity and temperature sensors (± 2.0 %), calibratable, with multi-range switching and active output

VFF
VFTF
with display

HYGRASGARD® VFF Showcase humiditysensor (± 2.0 %), *Premium*
HYGRASGARD® VFTF Showcase humidity- and temperature sensor (± 2.0 %), *Premium*

Type / WG02	Measuring Range / Readout Humidity	Temperature	Output Humidity	Temperature	Display	Item No.	Price
VFF-I						I-variant	
VFF-I	0...100 % r. H.	–	4...20 mA	–		1201-6122-0000-100	**440,37 €**
VFF-I **LCD**	0...100 % r. H.	–	4...20 mA	–	■	1201-6122-0200-100	**488,93 €**
VFF-U						U-variant	
VFF-U	0...100 % r. H.	–	0-10 V	–		1201-6121-0000-100	**440,37 €**
VFF-U **LCD**	0...100 % r. H.	–	0-10 V	–	■	1201-6121-0200-100	**488,93 €**
VFTF-I						I-variant	
VFTF-I	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	4...20 mA	4...20 mA		1201-6122-1000-100	**444,32 €**
VFTF-I **LCD**	0...100 % r. H.	(4x as above)	4...20 mA	4...20 mA	■	1201-6122-1200-100	**493,20 €**
VFTF-U						U-variant	
VFTF-U	0...100 % r. H.	–35...+75 °C –35...+35 °C 0...+50 °C 0...+80 °C	0-10 V	0-10 V		1201-6121-1000-100	**444,32 €**
VFTF-U **LCD**	0...100 % r. H.	(4x as above)	0-10 V	0-10 V	■	1201-6121-1200-100	**493,20 €**
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101					on request	

HVAC & BYGNINGS-AUTOMATIK

VORES PRODUKTSORTIMENT INKLUDERER:

LUFT & FLOW - KANALFØLERE

RØR- OG KANALFØLERE

TRYK- OG FLOWTRANSMITTER

TEMPERATURFØLERE

FUGTIGHED

LUFTKVALITETS- & FLOWFØLERE

VI FØRER PRODUKTER INDENFOR KATEGORIERNE:

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